ITEMS OF INTEREST.

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Thots from the Profession.

IS ORGANIC MATTER USED AS FOOD, ASSIMILATED?

BY J. F. SANBORN, M.D., TABOR, IOWA.

NO. 3.

It is very desirable that this question should be settled so effectually as to be satisfactory to all earnest inquirers after truth. Dr. Taylor desires "more proof than any man's *dictum.*" We presume there are others of the same opinion who would rejoice to know how our most noted scientists would answer the question. In this article we propose to give quotations from such authors as we have at hand bearing on this subject, and time to investigate on our part, and space to publish on the part of the ITEMS.

1st. Prof. A. Guyot's new work on the creation, p. 88: "The most important function of the plant in the economy of nature is, with the aid of the sun's light, to turn inorganic into organic matter, and thus prepare food for the animal. Nothing else in nature does this important work. The animal cannot do it, and starves in the midst of an abundance of the materials needed for the building up of the body. The plant, therefore, is the indispensible basis of all animal life." P. 91: "The plant is not yet life, but the bridge between matter and life—the link between the two ages."

Physiology of Prof. J. W. Draper, p. 16: "No article of food is suitable for food except it be of a combustible nature. Its chemical constitution must be such that if the temperature be raised to a proper degree with a due access of atmospheric air it will take fire and burn, and the product of its combustion must be carbonic acid gas and water, or those substances with nitrogen or its compounds." P. 17: "The general result at which we arrive is, then, that food consists of combustible matter, and that the substances dismissed from the economy are oxidized bodies." P. 27: "In a chemical point of view, plants are organizing, and animals destroying machines."

Carpenter's Physiolgoy, p. 107: "Chloride of sodium finds its way into the system as a constituent of almost all articles of both vegetable and animal diet. It seems probable, however, that the quantity which is really required is usually supplied by the ordinary diet; and there are numerous tribes which subsist in health and vigor without any additional source of it."

Oliver's Physiology, p. 260: "The food of man is derived both from the animal and vegetable kingdom. Animals are exonerated from the toil of the initial assimilation of the materials composing their frame, as in their food, the elements are already in the order which is adapted for their purpose."

Prof. Paine's Institutes, p. 15: "As organization begins in vegetables, it is obvious that all compounded organic substances can be restored to an organic state only by that of the vegetable kingdom, which was created for the ultimate final cause of supplying food for animals. The plant reduces, the animal consumes." P. 135: "Animals, being incapable of organizing inorganic substances, are dependent on the vegetable kingdom as their ultimate supply." P. 137: "Vegetables, indeed, precede animals, and are therefore essentially independent, while animals derive all they possess from vegetable creation."

Prof. Leoni S. Beale's Protoplasm, p. 225: "It has been shown that what is essential to the cell or elementary part is, *matter that is in the living state*—bioplasm, and matter that *has been in the living state —formed material.*"

Correlation of Forces, by Prof. E. L. Yeomans, p. 397: "The elements of the food of men and animals which give rise to power and heat are produced in living plants only by the action of sunlight."

Yeoman's Chemistry, p. 334: "From the inorganic world, directly or indirectly, all living things originate, and to it they all return. From the mineral world, matter can pass only to the vegetable kingdom."

Dr. Taylor, in Oct. No. of ITEMS, p. 416, says: "Nearly all, if not all, of the inorganic substances, such as water, chloride of sodium, iron, etc., can be supplied to the animal economy without having passed through vegetable life, though the process of vegetable life usually prepares those inorganic substances in such proportions as to be the most acceptable to animal life, yet never adding to them any property they do not possess outside of vegetable life."

Because the doctor does not choose to take our views, as expressed in No. 1, found in the Sept. ITEMS, we quote from Flint's Physiology, p. 21, as expressing our views in full, and is a real summing up of the scientific and physiological views as we find them expressed by the most learned and celebrated authors in the world.

"Inorganic Principles.—This class is of inorganic origin, definite chemical composition, and crystallizable. The substances forming it

are all introduced from without, and are all discharged from the body in the same form in which they enter. They never exist alone, but are always combined with the organic principles, to form the organized fluids or solids. This union is, "*atom* to *atom*," and so intimate that they are taken up with the organic elements, as the latter are worn out and become effete, and are discharged from the body, although themselves unchanged. In the interior of the body they behave as organic substances."

AN INTERESTING CASE OF THE NON-ERUPTION OF TEETH.

At the recent session of the American Dental Association of Europe, Dr. E. DeTrey gave an account of an exceedingly interesting case of non-eruption. He says: In the autumn of 1882, Dr. Rossier, of Vevey, came to my office with a young lady, about 26 years of age. She had a very healthy appearance, but was in a very nervous state. She had full upper and lower artificial teeth. The doctor and herself gave me a full explanation of the case.

She never had a first nor second dentition. Not a single tooth ever made its appearance in either jaw. She had been suffering acute pain in the head and in both jaws for the last four months. She could not sleep, and had no rest without morphine. I found the aveolar ridge in a state similar to that in a mouth where all the teeth have been extracted a few months before, but the posterior parts rather flat on the surface, and the place occupied by the eye teeth more prominent.

The plate she was wearing hurt her by an unequal pressure on different parts of the aveolar ridge. I proposed the extraction of imbedded teeth in the most painful parts. She accepted. Chloroform was administered, and with a sharp lancet I laid the gum wide open on both sides of the posterior part of the lower jaw, for extracting the back teeth. I found a strong wall of the aveolus covering the teeth. Having no saw to suit those places I tried the chisel to uncover the teeth, but finding this way too slow and quite unsuccessful, I used the burring engine, with a large, sharp, Gates bur drill. In a short time a deep groove was drilled on each side of the aveolus, a piece of it taken out, and the teeth uncovered.

My assistant was washing the blood constantly with a syringe and sponge. I extracted six teeth; they were found in all positions, horizontal, upside down, etc., the first tooth joined to the second by exostosis, the roots of some of the first teeth partly absorbed. When I saw that the teeth were in such a condition, I went on extracting all.

The front lower teeth presented the greatest difficulty. They were so deeply placed in the jaw that I had to cut perpendicular grooves on each side of the eye teeth, down to the bottom of the roots, and a

deep hole on each side of the neck of the tooth, upon which to place the points of narrow and sharp forceps. These teeth were extracted forward, instead of as usual, upward. All the other teeth had to go through the same process. The incisors were found in a very healthy condition, and no trace of first dentition left. All the upper teeth were taken out in the same way. One of the eye teeth was found occupying a horizontal position, toward the middle of the palate. Its place was marked by a prominence. This tooth was very large, and so very deeply placed that I was afraid of making an opening into the nasal fossa.

The Gates bur drills worked beautifully in cutting the bone, yet I never had to use so much strength as for this extraction. The teeth adhered to the bone, and had a slight exostosis. The wisdom teeth were also found very deeply placed.

The operation lasted about two hours; the quantity of blood running all the time made it slow work. Since the operation she has been entirely free from pain.

Wishing to know something about the parents' teeth, I wrote to the mother, who gave me full information. Father and mother had good teeth until the age of fifty. They had never heard of any other such a case in their family.

STAINING ARTIFICIAL TEETH TO MATCH EXCEPTIONAL NATURAL ONES.

BY MR. WILLIAM DUNN, JUN., OF FLORENCE.

As in the *British Journal of Dental Science*, for December last, it is stated that it would be a great desideratum to be able to so stain or color artificial teeth as to make them exactly represent any exceptional natural ones that they may be required to match, it may interest your readers to know that the means are at command which will enable them to exercise their utmost ingenuity and artistic taste to this end, and to accomplish their wishes with really very little trouble to themselves and to the greatest appreciation of their patients. The process which I have adopted for some time in actual practice is as follows:

Thanks to the exertions of Mr. Lacroix, a dentist, in Paris, we have every requisite color ready to our hands prepared for porcelain painting and put up in color tubes similar to all artists' moist colors, which can be obtained of Lechertier Barbe & Co., 60 Regent Street, London. The colors which I generally use are: yellow, green, dark blue, brown, pink and black; all these colors are readily dissolved by essence of turpentine or essence of mint, when with a fine camel hair pencil they may be blended in any combinations, and the surfaces, necks, tips or other parts painted, tinted, lined or otherwise made to perfectly

coincide with any natural teeth, however irregular or parti-colored they may be. Of course, in most instances it is necessary to grind or disfigure the artificial teeth before painting them, and thus may be represented the worn down teeth of advanced age which so frequently show the dark brown tinted dentine within a circle of paler enamel, or the dark ring of enamel with the lighter center; the stained crowns of the bicuspids and molars under similar circumstances, the dark necks of denuded teeth, although the enamel surface may remain a good color, the blue-black appearance of carious teeth, either stained naturally or from amalgam stoppings. If naturally, it is very effective to grind notches out of the artificial teeth to represent decay and stain within and around the parts so disfigured. Honey-combed teeth may also be well represented by similar treatment. Indeed, there is practically *no limit* to the capabilities of the materials in skilful and artistic hands.

I find a *white* pallet advisable for mixing the colors.

After the teeth are painted they should be placed on pieces of platina or platina gauze, or in separate crucibles, for care should be taken that they do not touch one another.

If a whole set has to be colored it will be found convenient to fix them in a row in a mixture of two parts of plaster of Paris and one part of fireclay—which will not crack in firing. In this way a more uniform tint can be given than if done separately.

For firing I prefer the handy and simple but effective little gas furnace invented by Mr. Verrier, in which it takes about five minutes. The sufficiency of heat can easily be determined by watching until the crucible becomes a cherry red. Care must be taken not to overheat, otherwise the colors—especially the lighter ones, will disappear. These colors are as a general rule unalterable, but the operator must bear in mind that in passing through the vulcanizing process they are apt to become a little darker, and regulate his tints accordingly. At the same time the darkness can be corrected, if necessary, by applying fine sand paper or pumice powder.

With the pink color a very fair imitation of the gums can be produced; quite efficient in most cases of a single tooth, to prevent that disagreeable and unsightly appearance so often seen, of a long tusk, rather than tooth, between two short teeth.

With a little attention and practice anyone may soon master the initial difficulties of this painting work, and few, once having seen the advantage of the results, will again be content with the old method of using the nearest color attainable.

Temperance in Iowa is receiving material aid from the efforts of Dr. J. F. Sanborn, of Tabor. We have seen two or three of his lectures that are interesting, instructing and amusing.

ARTICLE VI.

ANSWERS TO THE QUESTIONS OF THE NATIONAL BOARD OF DENTAL EXAMINERS, FOR THE BENEFIT OF DENTISTS AND STUDENTS.

PREPARED FOR THE "ITEMS" BY W. S. ELLIOTT, M.D., D.D.S., NEW YORK.

What are the chemical constituents of dentine and enamel, and what are the proportions of each?

What are the chemical constituents of saliva?

THE CHEMISTRY OF THE ORAL CAVITY.

The questions at the head of this article—and the last—are answered, in the course of the essays, more incidentally, perhaps, than would be reasonably demanded, but in the study of the subject so many interesting associate considerations arise, that we beg to be excused if we dwell a little while, for possible elucidation on these few features of chemico-biological phenomena.

The cavity of the mouth is the territory of our present inquiry; and being the gate-way of alimentation it is, therefore, especially liable to interferences which bear strongly upon the integrity of structure and function. External forces—physical, chemical and mechanical, in various degrees of energy—are brought into quite immediate contact with the parts, resulting, ofttimes, in considerable destructive resolution.

The consideration of a more complete chemistry of the mouth involves a naming of the biological differentiations of primal elements; but the career of these have been so fully depicted by Dr. Atkinson that it would prove a work of superorogation to make any further attempt in this direction. It will suffice to note the more prominent aspects as demonstrated by experimental research, and to refer to such abnormal conditions as practically interest the seeker after the truth.

Anatomically we note the association of a variety of structures—glandular, mucoid, nervous, osseous, etc.—all subject to the same environment and the same external influences. The chemico-vital aspect of each is fully maintained under favorable conditions, but comparatively slight variations favor the reactions which tend to disintegration and disease.

The chemistry of normal insalivation has already been spoken of, in so far as it relates to the transformation of starch into grape sugar; but the saliva, independent of its peptonic principle, is especially prone to qualitative change.

Its composition is thus given:

Water	988.1
Ptyalin	1.8
Fatty acid	.5
Chlorides of sodium and potassium	1.4

Albumen with soda	.9
Phosphate of lime	.6
Albuminate of soda	.8
Lactates of potash and soda	.7
Sulphocyanide of potassium	.9
Soda	.5
Mucus with ptyalin	2.6

If, through deflection of nervous energy, the glands fail to properly elaborate their products, so may the latter lack the power to withstand the energies brought to bear on them. Reference to the constituents will show what may be eliminated by the splitting of the various molecules, and we may thus understand why the saliva may present at times an acid, an alkaline or a sulphurous condition.

The teeth, being constantly bathed in these abnormal fluids, in turn are subject to deterioration. Besides the living matter contained in these organs there is also a large proportion of calcium united with phosphorous, forming phosphate of calcium, and with fluorine, forming fluoride of calcium ; magnesia is also present. The phosphates are greatly in excess. Enamel contains about 96 per cent and dentine about 75 per cent of these salts.

These are, however, not set free, except as a sequelæ to the reactions which are first manifested in the bioplasm, or living matter of the tooth. The disturbance of vital equipoise and the subsidence of nerve and blood currents, tend to the loosening of the bonds which hold the earthy matter in due subjection. Thus it is that disorganization ensues, constituting the decay which it is ours to treat in our daily practice. The disturbance, however, may not proceed to the actual disruption of the molecules of the bioplasm, but only so far as to cause the tissues to retrograde to an embryonal condition and still remain capable of restitution. The bacterial phase of decomposition is not present under these circumstances, since physiological rule remains dominant. But when the proteid elements are set free by rupture, then it is that the chemical force asserts itself to the production of conditions favorable to the multiplication of these organisms.

Similarly, when calculi is deposited upon the teeth, intermingled with the effete, epithelia, mucoid and glandular products, that chemical reaction is swift, and bacteria abundant.

It is upon the doctrines we would promulgate in this essay that practice is based. And it becomes a legitimate inference, that when we recognize the true condition, our therapeusis must necessarily be of a rational kind, and success inevitable—if desire and truthfulness guide in the attainment of the end.

A strong mind shows itself by dignity, coolness and reserve under provocation to passion and retaliation.

YEAST.

Part of paper read at the American Dental Convention, by C. S. BOYNTON, M. D., BRANDON, VT.

If yeast is not added to the saccharine fluid, but is separated from it by a filter of porous earthen ware, the saccharine fluid will not ferment, although the filter allows the fluid part of the yeast to pass through into the solution of sugar. If the saccharine fluid is boiled so as to destroy the efficiency of any yeast it may accidentally contain, and then allowed to come in contact only with such air as has been passed through cotton-wood, it will never ferment. But if it is exposed freely to the air, it is almost sure to ferment sooner or later, and the probability of its so doing is greatly increased if there is yeast anywhere in the vicinity.

These experiments prove: (1), That there is something in the yeast that provokes fermentation; (2), That this something may have its efficiency destroyed by a high temperature; (3), That this something consists of particles which may be separated from the fluid which contains them by a fine filter; (4), That these particles may be contained in the air, and that they may be strained off from the air by causing it to pass through cotton-wood. Let us examine this yeast in its quantity before and after fermentation. The brewer introduces, say ten pounds of yeast; he collects forty, or it may be fifty pounds. The yeast has therefore augmented from four to five fold during the fermentation. Shall we conclude that this additional yeast has been spontaneously generated by the wort? Are we not rather reminded of that seed which fell on good ground? This notion of organic growth is more than a surmise, for beneath the powers of the microscope we can see it budding and sprouting before our eyes. The augmentation of the yeast is thus proved to arise from the growth of a minute plant called *torula*. Spontaneous generation is therefore out of the question. The brewer deliberately sows the yeast plant, which grows and multiplies in the wort as its proper soil.

But, says one, who has followed us thus far, the fermentation of the grape juice is spontaneous—no seed sown there; what can you say about spontaneous generation here?

Let us look at the facts: The wine-maker does not, like the brewer and distiller, deliberately introduce either yeast, or any equivalent of yeast, into his vat; he does not consciously sow in them any plant or the germ of any plant; indeed, he has been hitherto in ignorance whether plants or germs of any kind have had anything to do with his operations. Still, when the fermented grape juice is examined, the living *torula* concerned in alcoholic fermentation never fails to make its appearance. How is this? If no living germ has been introduced

into the wine-vat, whence comes the life so invariably developed there? You may be disposed to reply, with Turpin and others, "that in virtue of its own inherent powers, the grape juice, when brought into contact with the vivifying atmospheric oxygen, runs spontaneously and of its own accord into the low form of life." We have not the slightest objection to this explanation, provided proper evidence can be adduced to support it. But the evidence snaps asunder under the strain of scientific criticism, and we are obliged to look for some other answer to this question. What, then, is the decision of experiment in reference to the life in the wine-vat? Take a quantity of the clear filtered "must" of the grape, boil so as to destroy such germs as it may have contracted from the air or otherwise. In contact with germless air, the uncontaminated must never ferment. All the materials for spontaneous generation are there, but so long as there is no seed sown, there is no life developed, and no signs of that fermentation which is concomitant of life. Nor is it necessary that we should use a boiled liquid. Nature has so sealed the juice of the grape by its own skin that it is safe against contamination from without.

Pasteur has extracted from the interior of the grape its pure juice, and proved that, in contact with germless air, it never acquires the power to ferment itself, nor to produce fermentation in other liquids. It is not, therefore, in the interior of the grape that the origin of the life observed in the vat is to be sought. What, then, is its true origin? This is Pasteur's answer, which his well-proven accuracy renders worthy of all confidence:

At the time of the vintage, microscopic particles can be observed adherent both to the outer surface of the grape and to the twigs which support it. Brush these particles into a capsule of pure water, and it is rendered turbid by the dust. These minute particles, when examined by the microscope, present the appearance of organized cells. If, instead of receiving them in water, we brush them into the pure, inert juice of the grape, and examine this juice forty-eight hours after, we shall find our familiar *torula* budding and sprouting, the growth of the plant being accompanied by all the other signs of active fermentation. What is the inference to be drawn from this experiment? Obviously, that the particles adherent to the external surface of the grape include the germs of that life which, after they have been sown in the juice, appear in such profusion. The ferment of the grape clings like a parasite to its surface, and the art of the wine-maker, from time immemorial, has consisted in bringing—and, it may be added, ignorantly bringing—two things thus closely associated by nature into actual contact with each other. For thousands of years, what has been consciously done by the brewer has been done unconsciously by the wine-grower. The one has sown his leaven just as much as the other. Nor

is it necessary to impregnate the beer wort with yeast to provoke fermentation. Abandoned to the contact of our common air, it sooner or later ferments; but, the chances are that the product of that fermentation, instead of being agreeable, would be disgusting to the taste. By a rare accident, we might get the true alcoholic fermentation, but the odds against obtaining it would be enormous. Pure air, acting on a lifeless liquid, will never provoke fermentation; but our ordinary air is the vehicle of numberless germs which act as ferments, when they fall in appropriate infusions, some producing acidity, others putrefaction or alkalinity. The germs of our yeast plant are also in the air, but so sparingly distributed that an exposed infusion, like beer wort, is almost sure to be taken possession of by foreign organisms, and the life of the brewer is a constant warfare against these objectionable ferments.

You can understand from this how easy it is to fall into error in studying the action of any one of these ferments. It is only by the experimenter availing himself of every means of checking his conclusions, that he can walk without tripping through this land of pitfalls. Let us fix our attention more particularly upon the growth and action of the true yeast plant under different conditions. Let it be sown in a fermentable liquid, which is supplied with plenty of pure air. The plant will flourish in the areated infusion and produce large quantities of carbonic acid gas. The oxygen thus consumed by the plant is the free oxygen of the air, which we suppose to be abundantly supplied to the liquid. The action, so far, is similar to the respiration of animals, which inspire oxygen and expire carbonic acid. If we examine the liquid when the vigor of the plant has reached its maximum, we hardly find in it a trace of alcohol. And could every individual yeast cell seize, without any impediment, free oxygen from the surrounding liquid, it is certain that it would cease to act as a ferment altogether. This experiment leads us to ask: What, then, are the conditions under which the yeast plant must be placed so that it may display its characteristic quality? Consider the beer in its barrel with a single small aperture open to the air, through which it cannot imbibe oxygen but continually pours forth carbonic acid gas. Whence comes the volume of oxygen necessary to the production of this latter gas? The small quantity of atmospheric air dissolved in the wort, and overlying it, would be totally incompetent to supply the necessary oxygen. The only way left for the plant to provide for its respiration the needed oxygen, is to wrench it from surrounding substances in which the oxygen exists—not free, but in a state of combination. This it does by decomposing the sugar in the solution in which it grows, producing heat, and breathing forth carbonic acid gas, and one of the liquid products of this decomposition is our familiar alcohol. The act of fer-

mentation, then, is the result of the effort of the little plant to maintain its respiration by means of combined oxygen, when its supply of free oxygen is cut off; or, as Pasteur defines it, "*life without air.*" But here we must take heed lest we fall into a possible error.

"It is not all yeast cells that can thus live without air and provoke fermentation. They must be young cells which have caught their vegetative vigor from contact with free oxygen. Under these new conditions its life, *as a plant*, will be by no means so vigorous as when it had a supply of free oxygen; but its action, *as a ferment*, will be indefinitely greater."

Liebig, in his studies on fermentation, assumed that yeast acted in virtue of its *organic* character.

Ludersdorf concluded that it acted in virtue of its *organized* character, and proceeded to show it by the following experiment: He destroyed the cells of yeast by rubbing them on a ground glass plate. Here the life was destroyed, but the chemical constituents remained the same; but its power to act as a ferment totally disappeared.

SUCCESSFUL TRANSPLANTING.

We had an opportunity yesterday of witnessing one of the neatest pieces of dental work that has ever come under our observation. Dr. J. H. Epperson, who did the work, gives us the following particulars, and his statement is substantiated by the gentleman upon whom the work was performed: In the month of August last, a Mr. Williams, of Warner Valley, visited the doctor, and stated that he wished to have one of his lower molars filled. A diagnosis was made, and it was found that the nerve was dead from exposure, and Mr. Williams was informed that his tooth would have to be treated before filling, and that six or seven days' time would be required. Mr. Williams could not spare so much time, and transplanting was decided upon, and the tooth was extracted in the usual way, with the exception that being a very large one, a little extra muscle was required. The nerve was all taken out in a decayed state, and the tooth cleaned to the very roots. It was then put in a vise, and the roots filled with cement, while the crown, which was about one-fourth gone by decay, was built up with gold, so as to preserve its natural shape. The tooth, gums and socket were then washed with alcohol and carbolic acid, and the tooth driven home with a mallet. All this required three hours' time. The tooth has now been in four months, and an inspection of Mr. Williams' mouth shows that it is firmly imbedded, while the molar, as well as the gums surrounding it, have a good, healthy appearance. Mr. W. says that for biting purposes, it is as good as any tooth in his head.

EXPOSED PULP.

BY. DR. L. C. INGERSOLL, KEOKUK, IOWA.

[Extract of Address before the Iowa Society.]

How to treat an exposed pulp, has been *the* problem before the dental profession for the last twenty-five years. We have made some progress toward its solution, even great progress. But, as it appears to me, one capital mistake has been made, and that is, a failure to diagnose the case of exposure with regard to the pathological conditions of the pulp which inevitably follow exposure.

An exposed pulp may be found in any one of the following conditions, each of which defines a functional or a structural change and indicates a treatment successively modified to adapt the remedy to the condition of the diseased pulp.

However the exposure may be produced, whether suddenly by the excavator, or by the slow process of decay, the first effect is an *irritation of the pulp.* Its normal condition is that of confinement and exclusion from the air and from the fluids of the mouth. By exposure the atmosphere and saliva, both foreign elements, are brought into immediate contact with the pulp. The nerve filaments of that delicate organ are the first to respond in twinges and flashes of pain as the direct result of the irritation.

The irritation continuing, a second condition is induced which we call *inflammation.* This is a response from the vascular system of the pulp. Irritation and nerve excitement have accelerated the flow of blood—where the irritation is, thither flows the blood.*

Inflammation, therefore, is characterized by quickened arterial action, increased quantity of blood flowing into the pulp, and consequent distention of the vessels, and heat.

But the susceptibility of the blood vessels to distention is limited. The contractile power of the arteries is diminished by being overtaxed. The capillary vessels fail at length to pass the whole amount of blood over into the venous system. Hence the blood accumulates in the pulp in greater quantity than is demanded for normal nutrition.

The condition of the pulp is known as *congestion,* and is the third to be named in the progress of the disease.

Trace it still farther and we find that the blood thus accumulated has wasted its vitalizing influence, and become degenerated blood, and must be disposed of. Not being able to pass through the capillaries it bursts their weakened walls and passes to the surface of the pulp as pus. We now have a fourth condition—a *suppurating pulp.*

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* Is there more blood flowing *to* an inflamed part? Or does the nature of the inflammation produce an obstruction of the flow?—ED. ITEMS.

If perchance this does not happen, and the capillaries are not parted, but distended and disposed to pass the accumulated blood, this superfluous amount of blood may form new and superfluous tissue, thus expanding the pulp and forcing it out into the very opening caused by the decay. This excessive nourishment develops a condition known as *hypertrophy* of the pulp. It is the direct opposite of, and antagonistic to, the condition last named, and the fifth condition possible.

Pursuing this line of progress we find that hypertrophy, which is an excessive development of normal tissue, tends to the development of new tissue of another kind—*a fungus growth* called sometimes *polypus* or *tumefied pulp*. This is the sixth condition in order, although this tendency of the pulp is not very common. I have met with several cases in my practice, in which the abnormalities had adapted the pulp to an open air life free from pain—the excresence filling the entire cavity of decay and overhanging the margins. This tumefied condition is highly vascular and bleeds freely on the slightest touch.

Returning now to the suppurating pulp we find it undergoing a destructive process both of the functional life and of the substance of the pulp. Its cell structure is being broken down. The peripheral cells, which are the working cells, *odontoblasts* as they are called, being destroyed, the closing of the exposure by a deposit of secondary dentine, if not impossible in the nature of the case, is altogether improbable, and the wasting away of the substance of the pulp reduces it to a fraction of its normal size, and a fraction of its normal vitality. It is alive, with a tendency to death and obliteration. This is an emasculated pulp, a fragmentary pulp, and is the seventh and last of the pathological conditions I have to name.

Now let me ask the thoughtful practitioner, if, in view of the definite and varying pathological conditions which I have named and to which an exposed pulp is subject, is it enough for the purpose of rational treatment, to know simply the fact that the pulp is exposed? Again let me ask, is it in the nature and the therapeutical power of carbolic acid and oxychloride of zinc to cure each one of these seven forms of pulp disease which I have named and restore the pulp to its normal functions? I believe that a negative answer is the only intelligent reply that can be given to these questions.

If so, every case of pulp exposure demands most imperatively a critical diagnosis of pulp disease.

When, then, I am asked concerning the treatment of exposed pulp, the question is not an intelligent one, and cannot receive an intelligent answer, without a thorough diagnosis of the diseased condition of the pulp which shall determine whether it is in a state of irritation, inflammation, congestion, suppuration, hypertrophy, tumefaction or emasculation.

Admitting that such diagnosis is extremely difficult; without it, all treatment is a random effort, and mere guesswork. I had intended giving some of the more marked characteristics by which these several conditions may be known; thus to stimulate and encourage study and observation of the nature of pulp disease. But to avoid wearying you with two great length of my paper, I feel compelled to confine myself to general principles and omit, for the most part, minutæ.

There is one department of my subject to which I have not yet alluded, and that is "prognosis," which is a judgment of the course of disease with regard to its probable termination. It seems to have been assumed by many that the orthodox treatment of any case of exposed pulp is certain to restore it to health.

Within a few years some have been inclined to doubt the success of their own treatment of many cases, and have narrowed down the list of cases that are of permanent success to the few which exhibit the most favorable symptoms. But the capping process and the assumed preservation of the life of the pulp have been so commonly made the criterion for judging of man's professional skill and standing, that very few have dared to express their doubts or reveal the modifications of their practice.

Doubting has sprung up from the multiplied and increasing number of failures. But, naturally enough, many have accounted for their failures, not from the nature of the case, but from some faulty method of applying the treatment. But the more we study the nature of the pulp, the peculiarity of its functions and its relations to surrounding tissues, the more plainly will it appear that failures do arise from the very nature of the case.

Diagnosis of every case of pulp disease with reference to treatment should be made in full recognition of the following facts:

1st. The pulp in its most healthful physiological state tends to obliteration.

2nd. The vitality of the pulp is so feebly maintained in mature teeth that the slightest causes often produce death.

3rd. When diseased, the natural tendency of the pulp to extinction is greatly enhanced.

The first fact just stated is worthy of the most thoughtful consideration in relation to prognosis. In a paper which, by request, I presented before the Odontological Society of New York City, at their meeting in April last, on the "Relations of the Dental Pulp to the other Tooth Tissues," I adduced a large number of illustrative facts drawn from animal physiology, and instituted a line of argument based upon well observed facts in human anatomy and physiology as applied to the genesis and exodus of the teeth, in proof that the pulp, even during the period of its most legitimate performance of function, ***tends to deliberation.***

I shall, therefore, in the present paper assume it as a fact, and call your attention to it as all important in diagnosis of pulp disease.

The question now plainly resolves itself into this: With the natural tendency of the pulp to obliteration, how great reliance can be placed on its waning vitality under disease to restore the organ to healthful and permanent performance of function?

This natural tendency, exaggerated by disease, must be overcome as well as the disease itself. A rational diagnosis of disease of the pulp must therefore include an estimate of the vital force yet remaining in the pulp after having greatly exhausted its function in the formative work of organizing the hard tissue and having exhausted its vitality in combating disease.

A physician does not deem it necessary in every case to consider the disease with reference to prognosis, because he expects to control the prognosis by his remedies. But when the disease and the action of remedies is modified by coustitutional idiosyncrasies, peculiar diatheses or heredity, it is all important that prognosis should enter largely into his examination of the case. In diagnosis of disease of the pulp, one all important and ever present fact must be considered and must have its influence in controlling the judgment of every case. And that fact is not an idiosyncrasy, or any peculiarity of one case as differing from another in any manner, but it is a fact having all the force and power of a law of nature. It is a law of nature. The gradual extinction of the pulp as life advances is not the result of disease, but it occurs as a natural process of tooth development; it is the uniform working out of the economy of life with relation to the teeth as organs of mastication. —*Iowa Transactions.*

DENTAL EDUCATION.

EDITORIAL IN INDEPENDENT PRACTITIONER.

* * * The intelligent, educated and honorable men in the profession are to-day working to secure a better class of students, and to bring into dentistry practitioners who may be a credit to their calling, or who at least shall not positively disgrace it. But the almighty dollar has charms for many who pass for representative men among us; charms which entirely outweigh their professional pride, their regard for their professional brethren, their appreciation of the responsible position which some of them are called to fill, and even their character for professional honesty. While individual dentists, many of them, are carefully scrutinizing the qualifications of such students as apply to them to act as their preceptor, there are professors in colleges, deans and secretaries, who are assisting to weigh down a profession which has honored them, by periodically grinding out batches of graduates who

are little better qualified to undertake a reputable practice than were the self-taught rubber workers who rushed into dentistry fifteen or twenty years ago. It is a fact which causes reputable dentists to blush with mortification and shame, that some of our colleges are little better than mere diploma mills. They rush students through a course of instruction that is ridiculously insufficient. They seize upon the flimsiest pretexts for shortening the term of pupilage. They martriculate boys who have not sufficient education to be able to comprehend the lectures to which they are supposed to listen. They welcome students with not enough intelligence to learn to properly make a horse-shoe, and at the very shortest notice turn them out fully equipped professional men, armed with a diploma of true signification of which they have not the faintest conception. There is no graded course, but the plough-boy who has not decently mastered the commonest elements of learning, graduates as quickly as though he had been a student all his life. But one qualification seems to be required, and that is the ability to pay the fees.

We are not making an indiscriminate charge against all our colleges, for the most of them are, we believe, more conscientious in the administration of the powers granted them. But there are those, and they pretend to a respectable standing among colleges too, which seem to be entirely dominated by a contemptibly sordid, money-grubbing spirit. It is time that a halt was called, and an account demanded by the profession of the way in which some of these men are administering the trusts reposed in them. Common self-respect will soon force us to this; for the D.D.S. is a distinctively American degree, and we cannot expect the people of other countries to hold in good repute a diploma that is so abused.

It is in the heat of a righteous professional indignation, aroused by the perusal of the following letter received by us from an under-graduate in one of our schools, that we write these things. The man who penned this beautiful exhibition of scholarship is a pupil in a dental college, and another year will see him launched upon a suffering community, a full fledged D.D.S., armed with a diploma bearing the signatures of men of high standing in dentistry, who attest his eminent fitness for professional honors. We print the letter exactly as it was received, merely suppressing name and locality, though we are strongly tempted to give the college at which he is a matriculant a little free advertising:

Mr. Barrett, Esq.

Dear Sir: I was informed by one of the Dental Depots the other day about you as a Dentist which I am here with the —— Dental College taking a course which make me in the same line with you also and if possible I would after this term like to come and work with or for

you after this term as I will not or cannot get through this year so I have to be Idle all summer if I do not succeede in geting in some plase and would like to come and practice with you this spring untill next fall which I would be very much pleased to do and hope you have a plase open for me. Please write soon.

I remain yours Resp., (—— —— ——.)

Care of the —— Dental College.

TEMPERAMENT IN RELATION TO THE TEETH.

When the artificiality of artificial teeth is noticeable, the dentist has failed in a most important part of his work. He may have supplied dentures to serve the wearer for speech and mastication, but which, from an æsthetic point of view, are incongruous and unsightly. Dr. J. Foster Flagg, Professor of Dental Pathology and Therapeutics in the Philadelphia Dental College, has shown some of the causes of these mistakes in what he has written about the temperament in relation to the teeth. Starting from the four basic temperaments, bilious, sanguine, nervous, and lymphatic—following the marked distinctions of each through the various sub-classes of mixed temperaments—he shows how important is a thorough study of temperament for the successful practice of dentistry. The bilious temperament is marked by teeth that are bronze yellow, large and inclined to angular, set firm and close, with the gums heavy and firm, but inclined to angularity; the teeth of the sanguine are creamy yellow and inclined to translucency, well proportioned, smooth, moderately firm, with gums round and full; the nervous have pearl blue or gray teeth, with length predominating over breadth—inclined to transparency, and with the gums delicate, shapely, and fine; the teeth of the lymphatic are pallid and opaque, or muddy in coloring—large but not shapely, loose and flat, incisors devoid of depressions and elevations, and the gums thick and undefined in shape.

While a knowledge of the different varieties of the teeth naturally belonging to persons of different temperaments is thus seen to be important, in order that there may be a proper correspondence of the teeth with other physical characteristics, we suppose there is to be commended a sort of Darwinian selection, which will give each subject who has thus to be supplied with artificial teeth the advantage of the best selection in the class to which he or she belongs. This may be done, however, without associating the massive teeth of the bilious with the pearl-blue color of the nervous, or the long, narrow teeth of the nervous with the bronze yellow of the bilious, as is now occasionally done by some who, while they may be good dental mechanics, are certainly not dental artists.

Give some time each day to professional reading.

REACTION OF ORAL FLUIDS.

BY J. L. ASAY, M.D.

[Part of paper read before the California Dental Association.]

It will be remembered that three distinct pairs of glands empty their secretions into the mouth, besides numerous follicular glands found in and beneath the buccal mucous membrane.

From experiments of Magendie, Bernard and others, it is demonstrated that the fluids of the parotid and sublingual glands are clear and watery, and contain but a small proportion of solid matter, whilst that of the submaxillary is thick and viscid, and contains a larger proportion of solid matter.

The secretions from these sources are often varied in quantity, under certain influences, being augmented by the action of the masticatory muscles, the odor of savory food after a long fast, and other exciting causes; diminished by fear and exalted temperature of the body.

What are considered the normal characteristics of saliva, is a question, to many minds, of perplexity; yet it has, in a measure, been conceded to depend upon the nationality, habits and pursuits of the individual. That saliva is normal in which acidity and alkalinity in the mouth are so neutralized by contact with each other in such proportions as to leave alkalinity in access.

A sweeping assertion has been made, and often reiterated, that the characteristic reaction of saliva is alkaline; to this we agree so far as an admixture of the fluids is concerned, yet it is far from truth as regards the identity of each distinct secretion. Besides, many modifications may and frequently do occur; for instance, saliva changes its chemical proportions. After a full meal it is alkaline and changes constantly to the end of the long fast; when, having passed from the alkaline condition to neutrality, it becomes decidedly acid in its reaction. How shall we determine that the one condition for the time being is not equally as normal as the other?

Again, we find from observation that in those of robust health who are hearty eaters of wholesome food, the mixed fluids of the mouth are always alkaline, but in those of effeminate stature, with nervous temperaments and sedentary habits, they are either neutral or acid.

We, therefore, assume that an alkaline reaction is not universal in health, even when the litmus is placed directly under the tongue, which is the most favorable position for the test. But may not the secretions be acid in one part of the mouth and alkaline in another? Experience shows that where the test is applied under the tongue in an admixture of saliva, it shows an alkaline result; but by applying the litmus to the free margin of the gums, or in a deep sulcus of the mouth, previously rendered perfectly devoid of food or other extraneous matter, we secure a decided acid reaction.

So far as our observations have been made, we are led to believe that this acid condition is produced by the agency of the buccal mucus, containing a peculiar principle called ptyalin, albuminous in character, and in such conditions as to be capable of producing fermentation. Neither pair of salivary glands, according to the researches of Cl. Bernard, can by themselves effect a change, "but an admixture is necessary for the generation of the peculiar ferment."

Saliva is liable to a departure from its normal standard through such a cause, as in fever, or other acute affection of the system, where the degree of temperature of all the organs is raised, thus affording increased facilities by the influence of heat and moisture for the process of fermentation; and it is in such cases that an alkaline wash for the mouth is particularly grateful to the patient and serves as a preventive to those morbid changes which attack the teeth and appendages during such a condition of exaltation.

Acids are generated in the mouth from food and condiments, especially where the remains of these are left on and between the teeth. We have by the simple process of fermentation the generation of acetic acid, and as decomposition advances it will frequently be observed that upon removing extraneous matter from beneath the teeth or other receptacle the familiar odor of sulphuretted hydrogen is present, and such conditions will remain so long as the exciting cause is permitted to exist. Nitric acid may be formed from the nitrogenous food remaining in the mouth and concealed in recesses, the food giving up its nitrogen which, uniting with hydrogen in the necessary equivalents to form ammonia, which in its turn, becoming decomposed, and an oxide of nitrogen formed, of course, nitric acid will be the result. In organic structures, sulphur is always united with albumen, and the same causes that produce sulphuretted hydrogen in the mouth will assist in forming sulphuric acid.

In regard to formation of acids by fermentation and habits of negligence, the old adage that "cleanliness is next to godliness," is in such cases particularly applicable, and should be deeply impressed upon the minds of those entrusting themselves to our care. The mouth needs washing as much as the face and other parts of the body. Teeth of good structure, if kept clean, seldom decay.

Acids to disintegrate tooth-structure must be constant in their application. When acid first attacks a base, a salt is formed, which is no longer acid or alkaline, but neutral in its character, and this salt must be removed, as it necessarily is by being taken up and held in solution by the fluids of the mouth, and a new quantity of acid brought into contact with the exposed structure to continue the process of decalcification. In other words, there must be a continuous circulation of fresh acid, otherwise the chemical destruction is retarded and at length entirely checked. Therefore, decalcification is in exact ratio to the amount of chemical force applied.

LETTERS FROM A MOTHER TO A MOTHER ON THE FORMATION, GROWTH AND CARE OF THE TEETH.

BY MRS. M. W. J.

[Written for the Southern Dental Journal.]

LETTER VIII.—DENTITION AND DISEASE.

We will now pass over the intervening time until, when, having given birth to your baby, and having nursed it faithfully at the breast, you are feeling more or less the effects of this drain upon your system, and are looking forward to the time when the little pearly teeth making their appearance will show that nature is preparing the way for other food.

No exact rule can be laid down as to the time of their appearance, as it varies with the general growth of the child.

There are on record cases where children have been born with teeth in their mouth—Louis XIV, of France having had two; others who have lived to old age without ever having any teeth at all; others again who have never exchanged the little baby-teeth for the larger, permanent ones; and still others who have cut their first baby-teeth at ages varying from twelve to twenty-six years! These, however, are abnormal irregularities with which I hope your children will never be troubled.

As a general rule, the baby begins to "cut its teeth" (and the first two appear in the center of the lower jaw), at about six months old—four months being unusually early, and nine months very late. If *dentition* is perfectly regular, the teeth will appear in pairs, alternately, below first and then the corresponding teeth, above, in the following order:

Two in the center of the lower jaw, and two above, called *central incisors:* followed by one adjoining on either side, called *lateral incisors.*

These eight "cutting teeth" will appear notched, like the edge of a saw, when they first come through, this form facilitating their eruption, but this will soon wear down; they will usually all take their places within a short time.

Then there will be a period of rest; after which the work will recommence far back in the little jaw, and a jaw-tooth—double-tooth, "grinder"—or, as properly called, *molar* tooth, will appear, one on each side, first below and then above.

There will now, of course, be twelve teeth, and the baby be probably from twelve to fifteen months old.

After a rest from the serious effort of pushing forward these four large square teeth, the vacant spaces are next filled in with the pointed cuspid—"dog teeth," *canines*, or as popularly known, "stomach-teeth" below and "eye-teeth" above.

By the end of the second, or early in the third year, the full set of twenty baby-teeth, "milk-teeth," or *deciduous* teeth should be completed by the appearance, back of each of the first jaw-teeth, of another grinder or *molar*.

The eight *incisors* and the first four *molars* generally make their appearance without any serious difficulty, if both mother and child have been kept in a state of good general health, by means of proper diet, suitable and sufficient exercise, bathing, and plenty of fresh air.

A child ought not to suffer any more in cutting its teeth than do the young of domestic animals; the process is the same in both cases.

Many diseases undoubtedly may, and often do occur, during the process of *dentition*, but it does not by any means follow that *teething* is the *cause* any more than that it is the *result* of these diseases. It is, nevertheless, a sad fact that children frequently suffer seriously when they are cutting their *stomach* or *eye-teeth*, and that the time for the appearance of these teeth is looked forward to with grave apprehensions.

Now why is this? These teeth, having but one point to cut through the gum, it would seem as though the process should be an easy one, compared with the eruption of the large grinders, and the child being older and stronger should be better prepared for it.

Now there are usually two causes in operation about this time which, singly or together, to the eye of a mother appear to have much to do with causing the sickness and even death of so many children at this period of their dentition.

One is, that the four sharp little teeth above and below can *bite so hard* and cause the mother so much pain, and the four grinders are apparently so well able to do good work upon food (being undoubtedly designed for this work ultimately), that they are put to work *too soon*, and the change from the mother's milk made without sufficient gradual preparation of the delicate stomach.

The baby *wants to bite*, and instead of being given some smooth, hard substance, it is given *crackers* and *sweet-cakes* to bite upon. This starchy food sours upon the stomach, and gives cholics, indigestion and diarrhœa; or—even when it is apparently well-digested—containing no mineral elements of nutrition, fails to enter the blood, the babies, even when fat and apparently well-nourished for a time, rapidly losing flesh and sinking under trivial disorders—victims to mineral inanition, *not to teething*.

Another efficient cause is, that as the baby is now creeping about on the floor, or even trying to stand alone by a chair, the long clothing, which has hitherto protected its limbs so thoroughly, is now discarded; and while the upper portions of the body are still well protected, the lower limbs are almost bare, except little short socks and tiny slippers

on the chubby feet, with nothing whatever but short, flowing skirts between the top of the socks—which are half the time kicked off, too—and *a garment* which is but too often wet and cold.

The lower extremities being chilled, the chill strikes to the bowels, and diarrhœa ensues. Especially is this the case in summer. Let the clothing be as light as you choose, in hot weather, but let it be of *uniform thickness,* and there will be less "summer complaint" and fewer deaths *from teething.*

We will now consider the more legitimate troubles connected with teething:

The teeth in their development necessarily crowd and press against the tender gums from within; this naturally causes more or less swelling, redness or inflammation, especially in the case of the upper teeth. This irritation causes an increased flow of saliva, which is rendered more acid than in its normal state, by the abstraction of its alkaline elements, to supply the increased demand of the system in developing the teeth. This should be corrected by proper diet, and the free use of *lime-water,* which is prescribed by Dr. Wm. S. Stewart in his highly successful treatment of cholera infantum.*

This acid saliva, in such large quantities, if not counteracted by this simple alkaline treatment, becomes one of the chief causes of the "diarrhœa of teething," so often fatal if not held in check.

A certain degree of looseness of the bowels should be no source of apprehension, as it is advantageous, rather than otherwise, in reducing inflammation, when kept within bounds by judicious diet, both on the part of the mother and of the child itself, when the mother's milk is supplemented by other food. *Constipation* is much more to be dreaded, and must be promptly counteracted.

The inflammation of the gums—if dentition be somewhat irregular, and a number of teeth are crowding up at once—may be very severe, and produce fever. Too much blood may also be determined to the head, and this, at a period of life when the brain is very large in proportion, is sometimes a cause of *convulsions,* when preventive means are not employed. Lancing the gums, at the proper moment, is the certain, safe and simple remedy, in the hands of an experienced dentist, who knows just when, where, and how to do it.

Another source of intense suffering to many a tender babe is *earache,* a sympathetic result of this inflammation, branches from the same nerve supplying both the teeth and the ear.

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* A good remedy is, quarter pound pulverized rhubarb and quarter pound baking soda steeped in pint hot water; strain and add another pint hot water to the powder and again strain. Unite the liquors and add enough sugar to make a syrup, and enough essence of peppermint 1 part and anise 2 parts to give it quite a warm taste. This should be kept in the house for diarrhœa, dysentery, cholic and flatulency, and as a mild cathartic.—ED. ITEMS.

The earache, even of a very young babe, is readily recognized by the way in which it rests its head cautiously against the nurse's breast; its aversion to motion, the slightest movement seeming to increase its suffering, and its pathetic way of carrying the little hand to the ear, involuntarily pointing out the seat of pain. This form of earache is relieved by the same simple remedy—lancing the swollen, inflamed gums, just at the right time, by a competent dentist or physician.

TREATMENT OF DECIDUOUS TEETH.

BY HENRY S. CHASE, ST. LOUIS.

* * * I extract all dead roots, whether with or without crowns. Now right here, let me repeat what I have thousands of times before said: A tooth is not necessarily dead because its *pulp* is dead. On the contrary, a tooth with a dead pulp almost always has a living pericementum, for a long time after the death of the former. I extract all teeth having pericementitis, which I think I cannot easily cure. It is bad practice to allow roots which are causing inflammation to remain contiguous to undeveloped teeth. If a child comes to me for the first time with teeth that need extracting, and also those which need plugging, I perform the latter operation first, if possible, so as to produce a less unpleasant impression than by a different procedure. When we once get the confidence of the child by having performed *painless operations*, then it will not be destroyed by a painful one, if we do not *deceive* the child. When the latter asks me "will it hurt?" I always tell it just what I honestly believe. It cannot be too thoroughly impressed on the minds of parents, that children ought to be brought to have their teeth filled *before they have ached.*

If a child is brought to me at four years of age for consultation, and even after that as often as I may designate, that child need never have the toothache, or the parents wakeful nights on that account. This as a rule. There are children whom I cannot manage, but they are few, if the parents will not *meddle.*

Painless operations must be performed. Fatigue of the child must be also avoided. Give it short sittings, say from fifteen minutes to half an hour, according to age and endurance. Even a quarter of an hour may be too long. What time is lost in brevity must be made up by frequency. I cannot insist too much on these things. Parents will urge longer sittings, because it is trouble to themselves, but be firm and look only to the success of your treatment. When these fundamental principles are well *felt* by the dentist, his practice with the children will glide into natural channels, without too much particularizing on my part.

I find that operations performed on children's teeth are not as suc-

cessful, as a rule, as upon those of adults. One reason is the necessarily imperfect manipulations of many cases. The very fact that pain must be avoided makes it so. On the other hand, deciduous teeth are full of activity, of motion; the microscopical organs composing them are active; if a plug is not in harmony with its walls, resorption may take place and the pulp become irritated or *exposed*. It is well to remove superficial decay when possible; especially on proximate surfaces the teeth should be cut freely, and always so as to be as self-cleansing as possible. This is still more important when one proximate surface is a sixth-year molar or biscupid; the deciduous tooth should be far removed. When plugs are placed on proximate surfaces the same separations should be maintained, for plugs and teeth will last much longer than if the natural shape of the teeth is maintained, or a *narrow* space left between the teeth. Some grinding surface must be sacrificed for the good of durability. Experience with each individual child will decide this.

The pulp chamber in deciduous teeth is very large, often occupying a large portion of the crown *above the neck*, with horns running towards each cusp. Great care must be used not to wound this pulp or its horns in excavating, for they are exposed in very many small crown cavities, and especially is this the case when the resorptive process has commenced. When freshly exposed, or not having had many inflammations, efforts should be made to preserve it alive. To do this, oxy-phosphate of zinc must not come in contact with the pulp or with dentine. Oxy-phosphate of zinc is not in harmony with the delicate tissues of deciduous teeth.

Gutta-percha varnish (chloroform and gutta-percha in thick solution) that will drop from an instrument, should always be used for an exposed pulp—it will quiet the pain and keep the air from the pulp; drying as it does, rapidly, the *plug* can be introduced immediately, either of oxy-phosphate of zinc or metallic paste. For a temporary filling the former may be used, as it hardens rapidly, and can be introduced with little pressure. But it is much better to *fill the cavity but once*. It will suit parent and child much better than another operation. The thorough removal of decay must not be insisted on when accompanied with pain. Its removal is desirable and should be done when it will not prevent the accomplishment of our object, but "a half loaf is better than no bread," and therefore there may be cases when but little of the decay can be removed. Saturation of the carious bone with alcohol will render it less liable to decay, and if the margins of the cavity are cut away until sound and healthy dentos is reached, decay will proceed very slowly under a water-tight plug. The metallic paste should be the best amalgam that can be procured.—*Mo. Dental Journal.*

BLEACHING TEETH.

BY GEO. H. CUSHING.

The agent that in my own experience is most to be relied upon, is chlorine; and I think it is the one most generally employed. In a very large majority of cases, it will be found to be all-sufficient, or at least, more efficient than any other agent. Still there are some cases in which nitric acid may be employed to better advantage than the chlorine; many other agents have been suggested, such as oxalic acid, peroxide of hydrogen, and some others. I have, personally, no knowledge of the action of any agent, except chlorine, nitric acid and peroxide of hydrogen; and of the latter only from one trial, in which it failed to act promptly, and I performed the bleaching with chlorine. Nor am I aware of any success that has attended the use of any agents, other than the chlorine and nitric acid, that would place them higher in value than others. That it would be desirable to find some agent more powerful than these, is certainly true, as in a few cases we fail to secure as good results as we desire with any agent now practically known in this connection.

Nitric acid has been suggested as particularly indicated where the discoloration is due to the presence of metallic oxides. Theoretically, this is undoubtedly correct, and probably would be practically, but as I before remarked, it is impossible sometimes to determine whether such oxides are the cause of the trouble, and in many cases where we do not think the discoloration due to metallic oxides, still the nitric acid bleaches more thoroughly than the chlorine. It can only be determined by experiment, whether it is better or not, and in cases where the chlorine does not accomplish as much as we desire, the nitric acid may very properly be tried.

Now, as to the mode of applying these agents and the general treatment of such cases:

The rubber dam should be applied and the discolored dentine cut away as extensively as is consistent with the strength of the tooth. If chlorine is to be used, the preparation known as Labarracque's solution of chloride of soda, or of lime, is probably the best that can be employed. Pure chlorine gas has been used, but I believe the testimony of those who have tried it, does not warrant its recommendation over the solution just named. When the cavity is thoroughly excavated, a small pellet of cotton should be dipped in the solution and then touched to a little powdered alum and immediately applied to the cavity and allowed to remain there for ten or fifteen minutes. The cavity should then be washed and dried, and the application repeated, and repeated as often as may be necessary to secure the best results. The alum is used simply because the chemical action which takes place, liberates

free chlorine, which is then nascent and acts more powerfully and rapidly than it otherwise would in the solution alone. It may be necessary to repeat this treatment at two or three sittings, pursuing it for from one to two hours at each sitting. In the majority of cases, this treatment will secure very satisfactory results. When the tooth is ready for filling, it may be lined upon its labial side, with oxyphosphate of zinc, if desired, which will, in some cases, aid greatly in restoring the natural color. Where nitric acid is used, it may be applied in the same way on a small pellet of cotton, but should not be left so long—only from two to five minutes—and, after the bleaching is finished, for any sitting, the cavity should be thoroughly washed and re washed with a solution of bicarbonate of soda, or some other alkali, to thoroughly neutralize any acid which might remain in the tooth.

A word should be said, before closing the subject, upon the effect which these agents may have upon the integrity of the tooth structure. Many people believe that a tooth cannot be bleached, except at the expense of its strength and durability. Theoretically, this is doubtless true, but practically, I am sure it is not. I am certain that I have never seen any destructive effect of any of the agents named, even from the most prolonged and repeated bleachings, and no man need feel any anxiety in that regard if he uses his agents properly and allows himself to be guided by common sense.—*Trans. Ill. Society.*

Gutta-percha varnish is made by dissolving gutta-percha in chloroform. It requires the purest of gum, and, to make it limpid, the most careful clarifying. It is so cheap, however, as found already prepared at "all well regulated depots" at twenty cents a bottle—enough to last a year—that it hardly pays for each individual dentist to make it. And it is very handy for many purposes. To cover medicaments in treating sensitive teeth or exposed pulps, the film dries so quickly and is so impervious that it will be found excellent. There is nothing better with which to cover oxyphosphate filling while it is hardening. As a lining to nearly all cavities being filled it is well worth attention. It not only effectually closes the tubuli of the dentine, but makes a soft but very thin cushion between the filling and the walls of the cavity, thus preventing leakage.

Invisible ink, with a process to make the visible ink invisible: Write first upon the paper or postal card with one part sulphuric acid and even parts water. There will first appear a little roughness, as in writing with water, but this will disappear, and all will be entirely invisible. But a blank card or paper would look suspicious. Then interline, or write across the above with the tincture of iodine. To make the first visible and the latter invisible, heat the sheet.

THE GROWTH OF THE TOOTH AND THE CAUSE OF "SENSITIVE TEETH."

BY SAMUEL WELCHENS, D.D.S., ROCHESTER, N. Y.

It is well known to the careful student of dental tissue that the calcification of the teeth is not the work of a day. The process is slow and tedious, and so delicate as to render it subject to the slightest aberrations of the nutritive process, thus causing imperfections of structure, weakness of tissue, and often serious malformation. These are sometimes seen upon the surface, but often are hidden in the body or substance of the tooth when it seems to be perfectly developed. The process of vitrification commences with the dentine, hardening inward from the inner surface of the enamel until the pulp has been reduced to its normal size or limit. After this there is no change in the structure of the tooth, except that which is caused by caries or a slight hardening of the tissue in after life, whereby the pulp is somewhat diminished and the fibrillæ perceptibly shortened by the ossification of the tubuli. Hence we find that in young teeth the fibers which enter the tubes of the dentine, and are elongations of the substance of the pulp, and—especially in teeth that, through some constitutional or nervous weakness, become frail and chalky—spread outward boldly, approaching the surface of the dentine and sometimes even penetrating the enamel, so that they are easily reached either by caries or by an instrument when the disorder is slight and the cavity exceedingly superficial.

We are apt to say of such teeth when treating them that "they are all nerve." It is to this class of teeth and this kind of structure that attention is here called.

The elongation of the fibers above referred to is the result of one of two causes: either a malformation of the dentine in the process of calcification whereby minute fissures are left in its structure, which are usually filled with the albuminous material of the pulp, or through some disturbance of the nervous energy during the process of dentition, rendering the whole structure of the teeth frail and chalky, thus causing the extension of the tubes a neccessary provision in the nutritive process by producing a stimulant which is designed by nature to supply with animal matter what they failed to receive in enduring texture.

We find a similar provision of nature in the vegetable kingdom. A plant or tree, when in active vegetation, throws out fibrils from the main branches of the root, thus obtaining an immense absorbing surface just when the most nourishment is needed. After the season of active vegetation has passed and the plant has borne its fruit, the fibrils die and decay off, and the body of the root receives the elaborated sap, the material for which they contributed so much in gathering up the crude elements from the earth.

The fibrils of the teeth seem to hold the same function, though in structure and in character they are vastly different. In the case of children, when, in consequence of rapid growth, the demand for nutrition in all the tissues is greater than in the adult, and especially when the teeth are weak in texture, the elongation of the fibrils affording a larger nutritive surface seems to be necessary. And then when time and age have done their work of perfect development, and the teeth are rendered more dense, the pulp containing all the elements of dentine is diminished, the fibrils very frequently, through the process of calcification, are hardened into dentine and disappear altogether.

When a tooth containing these extended tubes is attacked by caries, the disease need not extend far below the surface in order to strike the fibrils and involve the pulp. In teeth of this character the tubes are often opened with the instrument. There may be no soreness immediately resulting than occasionally slight trouble from thermal changes, or the inconvenience of an unpleasant consciousness that the tooth is there, but a discolored tooth, in a year or two after the operation has been performed, will tell the tale. How often are we confronted with devitalized teeth in the mouths of some of our most confiding patients, when upon removing the filling we find the pulp dead from an operation which we regarded at the time it was performed as perfectly secure and successful, and the failure of which we could trace to no other cause than filling upon the exposed fibers from the pulp. The dangers of thus encountering those vital tissues should be kept steadily in mind by the operator, and when a cavity in the kind of teeth above described extends to any depth below the surface, care should be taken that it receive proper treatment before the filling is inserted.

For the purpose of closing up the mouths of the tubes, and thus protecting the exposed fibers, Canada Balsam is often used.

I think the most scientific and the most reliable treatment that can be instituted is to apply upon a pledget of cotton either diluted carbolic acid or creasote as an antiseptic, and then cover the bottom of the cavity with a thin coating of oxy-phosphate of zinc, and fill upon it as soon as it is hard. We have in this treatment not only an antiseptic and a good firm covering for the mouths of the tubes, but the cement being an astringent and absorbent both, the effusions and gases which may be the result of an injury, slight though they be, will be quickly taken up, and thus a perfect and enduring substitute is at once afforded.—*District Dental Society, Rochester.*

The mould on stale bread and other vegetables kept in damp places is a dense forest. If the trunks of these trees are too diminutive for our unassisted vision, what must be the size of the branches, buds, leaves, flowers and fruit?

OUR RELATION TO MEDICINE.

BY T. W. BROPHY, D.D.S.

The all absorbing question again presents itself before us: Are we to treat surgically or therapeutically diseases of the teeth? Are we to content ourselves with filling carious teeth, oblivious of the chemical action which brings about their disintegration, a recurrence of which *will* follow the most perfect manipulations, without even an effort on our part to correct it?

Shall our occupation be that of plate-makers? Is our knowledge of pathology to be confined to congestion and inflammation of the dental pulp and gums? Shall we say our profession is conversant with the branches of medical science, materia medica and therapeutics, when creasote and arsenious paste are the sole stock of remedies in the hands of hundreds of men practicing dentistry in this country, and making local applications to inflammation or suppuration of the mucous membrane, when in many such cases no man can cure them without constitutional treatment? And even in this advanced and enlightened age, to see our professional brothers, presumably in the full possession of their reason, surrounded by books of reference of the highest order, and periodicals filled with the richest fruit of experience, observation and knowledge; practicing their profession after the ideas of the generations of the past? Or shall we not put forth a greater effort in acquiring knowledge of surgery, pathology and therapeutics, as far as they can, in *any way, shape* or *form*, be associated with, or applicable to, our specialty? My answer is, Yes. What the better men in dental profession stand most in need of to-day is a greater, more extensive knowledge of the action of remedies, and how to administer or apply them.

I care not to be a general practitioner of medicine; my profession is a better one for a young man. The views of many are opposite to mine; but as for me, I do not care to suffer the humiliation of turning over to the general practitioner of medicine cases which are strictly within the province of dentistry, on the ground of not understanding them.

The great work to be accomplished by our profession is to prevent, if possible, caries of the teeth. If, however, we fail in this, our next duty is to arrest it. This, in my opinion, can only be accomplished by the aid of a knowledge of chemistry and therapeutics, a complete control of the patient, thus enabling the practitioner to prevent or correct a contracted arch and crowded teeth, a strict observance of the laws of hygiene, and last, but not least, the careful, trained and skilful hand of an honest, conscientious dentist. So far as we succeed in preventing and arresting caries of teeth, just so far we shall be instrumental in doing the greatest service within our power to humanity.

FOOD.

BY DR. J. WILDE, WESTON-SUPER-MARE.

All the foods we take, whether animal or vegetable, contain in varying proportions the same elementary substances. These are found to exist in the blood, and it is to make good the loss which the blood sustains while nourishing the body that it is necessary to keep up the supply by eating food containing these elements. It follows, therefore, that for any substance to be "a food" it must possess some of the identical elements which are contained in the blood.

These are composed principally of carbon, hydrogen, oxygen and nitrogen, with small proportions of sulphur, phosphorus, iron, and certain saline matters containing soda, potash, lime and magnesia. It is found practically that those foods which contain the largest quantity of nitrogen are those which afford the most nourishment. These have been called nitrogenous, and consist chiefly of albumen, fibrin and casein, which are designated "protein compounds," while the foods containing them are termed "proteid foods." These, with those containing starch and fat, sugar and certain minerals and water, make up the food on which we live, and any article which contains none of them is perfectly useless.

Milk is the best example we have of a perfect food. It possesses all the elementary substances. Thus, milk contains casein (proteid matter), cream (fat), and lactein (sugar), besides various salts (minerals) and water. It will be observed there is no starch, but, as we shall presently see, starch is always converted into sugar inside the body before it is assimilated, so that it may be regarded as the same substance as sugar. Of the above list, the only one, if we do not reckon the minerals, which is soluble, is the sugar. None of the others will pass through an animal membrane. For instance, if you were to put some white-of-egg (proteid), fat, or boiled starch into a bladder, and put the bladder in water, none of the ingredients would pass through into the water, as would be the case with dissolved sugar. Similarly, if you were to put white-of-egg into the stomach it would not pass through the cells of that viscus into the blood vessels until *it* underwent some process which would render it soluble. It is to be observed, that while food is only in the stomach, it is, for all practical purposes, *outside* the body. It is only after food has been converted into such a state as renders it capable of permeating the coats of the blood-vessels, so that it can join the blood, that it serves its purpose, aud nourishes the body. The digestive processes are simply means for reducing the food into such a state of subdivi ion or solubility as to permit of its passing freely from the stomach and intestines into the blood, through the membranes which form the walls of the blood-vessels.

The food which contains the largest amount of casein or proteid matter are butcher's meat, fowl, fish, eggs, and meat. Bread (whether wheaten, oaten, or rye) contains largely a substance called gluten, which, being rich in nitrogen, is allied to the proteid matters. The next important foods are called *hydrates of carbon*, because they contain carbon united with oxygen and hydrogen in the proportions to form water. They therefore may be roughly said to be formed of carbon and water. They consist of the various sugars—cane, grape, or milk sugar—and other allied substances, as gum, and especially starch. These are all found largely in vegetable diet, of which bread and potatoes stand at the head; arrowroot, rice, sago, tapioca, semolina, and the like, are almost pure starch.

After the hydrates of carbon come the *hydro-carbons* or *fats*, which are found in both animal and vegetable food. In milk it is represented by the cream or butter. The importance of fat in the animal economy is very great. Beneath the skin is a layer of this substance, which acts as a store which can be utilized as fuel, and which, acting as a bad conductor of heat, keeps the body warm. Moreover, there are large deposits of it in the neighborhood of the kidneys and other parts, as well as in the muscular fibers. Nerve substance is also largely composed of fat. Dr. Brinton observes that "the vast quantity of fatty matter which enters into the composition of the nervous system, and the primary importance of this delicate and energetic organ to the maintenance of life, entitle us to infer that its functions imply such a metamorphosis of its substance as can only be sustained by the continual supply of new materials to replace those rendered effete. Nor is it improbable that the delicacy of these metamorphoses so far transcends their amount as that fatty substances may be converted by them into compounds, really effete for the nervous centers, though still retaining sufficient of their original fatty composition to subserve the lower purposes of adipose tissue in the system at large."

The *salts of the food* are principally the chlorides and phosphates of the alkalies. Iron and lime are also important bases.

Water is a most essential article of food, or perhaps it would be more correct to say that none of the others could act as food without water. It forms about eighty-five per cent of milk—the universal food of young animals—and exists in greater or less quantities in all the food we eat. When we consider that two-thirds of the body consists of water, we shall have some idea of its relative value in nutrition, and of the reason why thirst is such a severe infliction.

Water, by imparting a low specific gravity to the fluids with which it is mixed, enables the various substances, when reduced by digestion to sufficient subdivision, to diffuse themselves readily through the organism. It moreover, as it were, washes out of the body some of the ex-

creta which would be poisonous if retained, as in the case of urea in the urine.

By far the greater part of all our food is derived from the organic, and scarcely any from the inorganic, kingdom. The body appears to have no power of building itself up with the simple chemical elements, as hydrogen, carbon, oxygen, etc., but it is requisite that these should be taken up by the subjects of the vegetable world, and sometimes these again by the animal, before those elements can be rendered available by the human organization.

The particles of which fat and starch are composed resemble each other in one respect—viz., that they are enveloped in wrappings or coverings which require dissolving or rupturing to set free their contents. In the case of starch this is done by cooking; raw starch, such as is found in rice, arrowroot, etc., being absolutely indigestible till cooked. In the same way fat consists of oily globules contained in an albuminous wrapping or envelope, which may be compared with the yolk (oily part) of an egg surrounded by the white or albumen, and this covering is dissolved in the process of digestion, and the oil globules set free.

Bad teeth, with the attendant imperfect mastication and consequent dyspepsia, give rise to all hopeless views of life and man's destiny. Hope flags, faith departs, the gods forsake the sky, and kind Providence is replaced by a melancholy and misshapen chance; thought and feeling die, the tides of life ebb to the lowest, the most fatalistic and atheistic views in philosophy are adopted readily, the whole universe seems bound by irrefragible chains of suffering and remorse, the stars shine with a yellowish glare to his gangrened vision, and a settled misanthropy possesses him, and taunts him with the unanswerable interrogatory: "Is life worth living?"

Consider how all this mournful record might have been reversed by a proper attention to our art. While happiness may not be the end of life, nor the test of virtue, yet the pursuit of it is noble and engrosses all, and oftener than elsewhere it may be chased down and captured in a dentist's chair. Here beauty is regained, character brought back, the esteem of the public repurchased, hope restored, the throne of the Deity unveiled, the world clothed in beauty, and the silver lining of the cloud turned outward; pessimism is pushed out by a rejoicing optimism, which believeth all things, hopeth all things. A tooth root may thus become a root of all evil, and its extraction may operate like the eradication of original sin.—*Dr. C. S. Stockton.*

The Transactions of the Ohio State Dental Society, for 1883 is received. It is a creditable pamphlet to the publishers and the society.

REPLY TO DR. SANBORN'S "CRITICISMS ON MOTHER'S LETTERS."

MRS. M. W. J.

In the April number of ITEMS OF INTEREST, page 185, may be found an article bearing the above title. "*Criticisms of Liebig*" would, however, have formed a more appropriate heading to Dr. Sanborn's remarks, as the "Criticisms" refer only to statements contained in direct quotations from Liebig, as translated by Pereira, in "Food and Diet."

On page twenty-five of the pamphlet "Letters from a Mother to a Mother" (see page 465, December number *Southern Dental Journal*, or page 131 April number ITEMS OF INTEREST), I said: "Peas and beans, containing a large amount of *carbon*, readily satisfy the appetite, but containing no phosphates, they add nothing to the strength of the body."

This is perhaps a rather free translation and transposition of the exact language of Liebig, as translated by Pereira on pages 28, 30 and 162 of "Food and Diet."

The exact quotation from Liebig's essay on the "Application of Chemistry to the Physiological Study of the Human Blood" reads: "The small quantity of phosphates which the seeds of the lentils, (beans and peas) contain, must be the cause of their small value as articles of nourishment, since they surpass all other vegetable food in the quantity of nitrogen which enters into their composition. But as the component parts of the bones (phosphate of lime and magnesia) are absent, they satisfy the appetite without increasing the strength."

Dr. Sanborn criticises my interpolation of the words "*of the body*" after *strength.*

This was undoubtedly presumptious on my part; but, if the grammatical construction of the phrase used by Liebig himself (as translated by Pereira) refers *strength* back to bones, then, by the same rule of grammar, *appetite* must also be referred back to the same antecedent; but we can scarcely suppose that Liebig had reference to the appetite of the bones!

On the contrary, the language of the context—the whole sentence being in explanation of "the small value (of peas and beans) as articles of nourishment"—clearly bears reference to the nourishment and consequent strength of the body.

Dr. Sanborn also criticises the quotation from Pereira, "Animal diet yields a larger amount of nourishment than vegetable." But for making a direct quotation, I should (presumptiously again) have interpolated *in proportion to bulk;* and but for the desire to be as concise as possible, I should have quoted the whole sentence, as found on page 260, "Food and Diet:" "Several alimentary principles * * * are

found in both animal and vegetable foods. But the nutritive principles of animal foods are intermixed with a much smaller proportion of non-nutritive substances than those of vegetable foods. Hence animal diet yields," etc.

Hence we conclude, with the little boy in the story, that peas and beans, like uncooked dried apples, though "powerful fillin'," are "dreadful unsatisfactory" as a continuous article of diet.

CHATSWORTH, March 4th, 1884.

ED. ITEMS:—In your issue of March I noticed an article on root-filling, over the familiar signature of Henry S. Chase. This, to me, is an "item of interest." Allow me to say that for the last three years I have used a thick solution of shellac and alcohol in the manner he describes, but with this difference: I fill root canal with soft gold dipped in the shellac solution, and finish up permanent filling at once. Thus securing the two-fold benefit of the cleansing effects of alcohol and finishing the job at one sitting. Respectfully,

O. H. BRIGHAM.

For lower partial sets on vulcanite I use black weighted rubber, and strengthen the plate by embedding in the rubber a small piano wire bent to the shape of the plate. The advantage is this: The denture can be finished till it will be small, light, and have weight enough to hold it in place, with strength and durability. The idea was suggested to my mind by having to mend a lower plate the second time.

J. R. MORGAN, Kocomb, Ind.

MARSHALLTOWN, Iowa, March 17th, 1884.

ED. ITEMS:—Miss S. called, some time since, for examination in the region of the left inferior bicuspids. She gave the history of the case as follows: About five years previously her dentist had extracted the first bicuspid and replanted, after filling the cavity and plugging the apical foramen with gold. The operation was a failure (as, I think, most cases are), and the tooth soon became loose, and the gums congested, till finally the tooth came out. The socket had apparently healed, but had always been sore and tender to pressure. Examination revealed no cause; but a few days since she informed me that she had picked a piece of gold from the gums, and the soreness had subsided.

W. E. B.

The Transactions of the New York Society approaches the dignity of a book. How those New York dentists love to grow!

Editorial.

ORIGINAL ARTICLES.

In general literature, original articles are those written for the magazine in which they first appear; and it is presumed that they have not been publicly used before. In dental literature, judging from the custom of some of our dental journals, this term includes compositions which have been used elsewhere. If they have not been printed, they are brought under "Original Articles," though it may be necessary to give the information: "Read before the Black River Dental Association," showing they are already the property of that society. We will not quarrel with the custom, though we do think it may be straining a point, so that as much as possible of what is printed may appear as original.

All things being equal, original articles are to be prepared, but do not we editors and writers place more importance on this than general readers? They are after the thought, and care but little whence it came. If it is not good, its being original will not save it from neglect or condemnation. Yet, as editors, we are apt to publish some articles because written specially for us which, if found in some other publication, would be considered too long or too prosy, or too unimportant.

Some may complain that in the ITEMS we do not give sufficient prominence to original matter. It is true, we have not made much distinction. This is on the ground that if an article is good enough to appear in the ITEMS it is good enough to appear on any page; the principal motive in our selection and arrangement being variety and usefulness.

Original articles do not always, nor necessarily, contain original ideas. There are not many original ideas to utter. That is, we create but few. Many which a writer may honestly suppose original with him, were known and written before he was born. We are continually receiving thoughts from others, and laying them away, little thinking what we shall do with them. When the opportunity for their use comes, we throw them out as though they were original. And this may be true in an important sense. The thought as received may have been but a seed, and in the soil of our minds it has germinated and grown, and now brings forth fruit. If so it is ours, and it is not improper to call the use we make of it original. This should be an encouragement to use our pen freely and frequently. Not always,

however, to send the product straightway to the printer. Its more frequent use should be the reflex action it has on ourselves. Though we do not use certain thoughts in the shape we have written them, they are not lost. Writing is a wonderful cultivator of our faculties and a maturer of our best thoughts. It is not often that either the clearer idea or the clearer way of expressing it, or the profitable use of it, comes without much mental labor and practical effort to mature and apply it. Almost every thought worth possessing has to be paid for according to its value, and its chief value may be often the reflex action produced by our own mental manipulation.

Still, it should not end here. With patient care and continual perseverance we seek to bring forth mature fruit, luscious enough for any market. But we must not forget that, specially in these latter days, people expect their fruit put up in neat packages. The preparation and appliances of what is offered has much to do with its acceptability.

THE EFFECT OF THE IMAGINATION ON THE BODY.

Messrs. Landousky and Ballet, have published a curious observation of spasmodic contraction with paralysis of the lower limbs, which had lasted for twenty years and a half in a hysterical woman twenty-six years of age. On October 7th two pills were given to her, described as fulminating pills, which she was recommended to take with the greatest care, dividing each pill in half. On the following day the patient announced that she tried to poison herself, and that she had taken all four doses at once, that they had produced a terrible effect upon her, but that her disease was suddenly and completely cured. The pills were composed of bread-crumbs only.

Quite a parallel to this, in the effect imagination may have upon the body, is the case of the French prisoner who was brought out of his cell to be bled to death, as its easiest mode. He was put in an easy position and blindfolded; his left arm bared and bandaged; and then, as he supposed, the great vein was opened. The blood seemed to him to flow freely, and his pulse was watched carefully. The diminishing pulse was counted in measured tones. As the eminent surgeons speculated upon how long he could stand such a drain of blood, and finally talked in whispers of the near approach of death, the prisoner became weaker and weaker, till finally he dropped over and died. All they had done was to prick the skin of his arm and then allow a stream of tepid water to flow from off his arm into a pail.

When electricity was in vogue, as an obtunder of pain in the extraction of teeth, a lady called upon us to have an obstinate molar extracted without pain. We told her our battery was out of order, but

that we would take the greatest care possible in extracting her tooth without its use. No; she had always suffered the most excruciating pain in having a tooth out, and she would never suffer so again. The battery must be fixed, and that without delay. We tried, but could do nothing with it, but it would not do to say so. "Now then, please take the chair," we said. And placing the battery where she could see it, and attaching the forceps to the wire, we bid her open her mouth. It was a perfeet success. "Why, that is marvelous," said she. "It did not hurt me at all."

GOD'S SPECIAL PROVIDENCE.

Ah, yes; this is not a world of chance. Neither is it one of blind, unreasoning fate. The idea of law is not sufficiently significant, unless we realize behind this there is an intelligent force which must spring from an omnipotent God. The word Providence conveys our meaning: a providence which moves by laws immutable and everlasting, and yet adjusts those laws to the well being of every one of us; and, if *we* will, adjusts us to them in most delightful harmony.

This great system of order and orderly movement have behind them not only a supreme Intelligence, but everything whispers of love, intimate and immeasurable sympathy. It is a kind Providence, weaving about us a beautiful net-work of protection and possibilities which invites us into the way marked out for us, and intimating its will to us by strewing treasures and delights all along the path of goodness and right doing.

Ah, is not this charming?

At first view, it might seem a pity we are made free agents to choose and refuse. What can there be better than to be bent irresistibly by such a force? But the same wise God who offers us all this harmony and blending of circumstances to make us happy and wise and useful, has provided the possibility for the refusal of all. We may act out of concord with His will, and bring to ourselves sin, confusion, misery and destruction. But even then we are not left altogether. Have we gone astray? God, by his providence, is ever ready to do us good; continually we hear a kind voice wooing us back. Do we yield? Is it our meat and our drink to do His will? Then what a comfort to know, "All things work together for good to them that love God." Here we not only have providence, but that special providence which makes the good man "rejoice and in *every* thing give thanks."

But if we would be the objects of this special providence, let us see that, in God's hands, we are willing agents. Though of ourselves of little consequence, we thus become important. Though what we can do of ourselves is little, we are mighty as co-workers with God. If we

are His representatives, the whole earth will minister to our needs, all the powers of heaven will be at our call, and our acts will influence time and eternity.

A man alone is insignificant indeed, but a man with God is a power. For a good man, providence itself was instituted; all its movements are specially calculated for his good and his glory.

LENGTH AND BREADTH.

There are some men so earnest to follow a straight line of self seeking that they lack the breadth of good will to men. It is well that we should have a definite end in view, and exert ourselves thoroughly to attain it; but, if we shut our eyes to all pleasures, sympathies and duties that environ us on our way, we shall lack that wholeness and symmetry and usefulness of character suggested in "length and breadth."

It is well to be as straight and bright as a needle and as sharp as its point, and such men are always prominent for their precision, clearness, and exactness in business—yes, and generally for their success; but, if we are also as hard and narrow as the needle, while people will be sure to move out of our way and be glad to see us pass them, we shall have as little sympathy as we give, and receive as little real good from our success as we impart to the world which gives us that success.

There is something peculiar about water drinking. In is purity it exactly satisfies thirst as nothing else can do. In taking a draught, any beyond this is repugnant, anything less leaves a longing for more. It assists, by its mere diluent and solvent properties, without stimulation or other affection of function, the digestion and assimilation of food and lhe excretion of waters, as no other fluid can; and it is the all sufficient fluid for the various uses of the economy. Its universal presence in rain-falls and streams on and under the surface of the many facilities for purifying it when impure, make its use applicable to all conditions and for all necessities. We sometimes have a notion that other drinks do us more good; but is it not, after all, the simple water in these potions which satisfies the thirst? And by tickling the palate with these foreign ingredients in the water, are we not often induced to overload the system with fluids to the detriment of health, while many of these concomitants act as irritants?

"*Concerning Records*" is quite an elaborate essay read before the N. E. Dental Society, and sent out in pamphlet form by Dr. Geo. L. Parmalee, of Hartford, Ct. His mode of keeping a record of dental work is quite unique. Those who are not satisfied with the systems now on the market, would do well to look into the doctor's plan.

Gutta-Percha, as a filling for front teeth, is pretty good when the position of the cavity is not exposed to view. There is a great difference of materials on the market, but a good preparation, properly manipulated by the dentist, makes a better and more durable filling than generally supposed, especially when the walls of the cavity are first covered with gutta-percha varnish, to counteract slight shrinkage and cause the filling to adhere to the walls. Gutta-percha must be heated over steam or hot water. If you depend on softening it over the flame of a lamp, it is sure to become blistered, or porous, and thus be entirely spoiled for use.

For finishing amalgam and zinc fillings, a very smooth surface may be had by passing over the surface, before it hardens, a strip of rubber dam held taut. All over-lapping is thus removed, and a fine contour surface is produced.

A crowded state of the teeth is no doubt a prolific cause of decay. In fact, their proper separation will often obliterate decay which is not too deeply seated, and thus obviate filling. Of course, this must be done from the inside, and so accomplished as that, if contact does again take place, it will be near the grinding surfaces. There are slender V-shaped engine points specially adapted for this operation, called the Bonwill V-shaped reamers, used with the back-action attachments. We have often, with these, obliterated one-half of the small cavities found on the approximal surfaces of the front teeth, and yet without leaving any visible evidence of our work.

Learning thoroughly the use of remedies is quite as important as having them to use. To see the array of drugs around some dentists, one would suppose they were apothecaries. But their familiarity with any of them is merely superficial, and their use of them often produces more injury than benefit. Their rich treasures are like "pearls in a swine's snout." In nosing about here and there, they have found precious things; but now they have them, they do not know what to do with them, and in their experimentations they often find (like the hog who has found his pearl only to have it irritating his snout) that a very elixir may be the cause of pain and destruction, if improperly used.

A few good remedies thoroughly studied, so as to be used with discretion and skill, are worth more than very many with an indifferent knowledge of their properties and uses. But this familiarity must not be a mere memorizing of what is found in our books. It must come also from our own use of them, and the closest and most discreet observation of their actions, with the effect of every modifying circumstance or condition.

Education at our colleges would be vastly improved, morally and intellectually, if the halls were washed from tobacco juice, and the pupils elevated to something like decorum. The filth of tobacco defiles everything, and the noise and vulgarity of students are a disgrace. One would suppose young men came to these institutions to learn manners and become gentlemen, but instead of this, what little of these qualities they had at home seem to be forgotten. There are some grand exceptions, and it is a pity and a shame that the rowdy class should be allowed to make these their butt and ridicule.

Tooth-picks are as essential as tooth-brushes. They should be freely used after each meal, for the removal of vegetable, as well as animal substances. The wooden tooth-picks are a nuisance. Quills are much better, but not indispensable. Gold tooth-picks are very nice. We know there is great prejudice against metal for this purpose, but we think it is ill-founded. There is no necessity of scratching, irritating, or in any way injuring the teeth with them We have used a gold tooth-pick, or rather a gold-plated one, which cost us but fifty cents that we have used for three years, and it is good now. These may be bought by the dozen at twenty-five cents each, and are a good investment, even as presents to some of our more important customers.

The Trustees of Jefferson Medical College recently conferred the degree of L.L.D. upon Professors J. M. Da Costa and B. Stillman, and the degree of Doctor of Divinity upon the Rev. J. F. Dripps. The annual commencement took place in the Academy of Music. There were 215 graduates.

The old practice of a pure medical college conferring the degrees of L.L.D. and D.D. seems to me of doubtful propriety. In fact, is it not entirely out of place ?

The safest sugar for any one to buy is pure loaf sugar, and it is much sweeter than any other. The principal substance used in adulterating sugar is glucose, which is sugar made from various vegetable substances, chiefly grain. While glucose is sweet, it is easily detected by the expert because it is not so sweet as cane sugar. It is, nevertheless, very extensively used to adulterate cane sugar and produce the cheap sugars which are sold in the market. Reputable dealers sell it as glucose, but there are many dealers who sell glucose for sugar. The nature of the glucose is to make a close, sticky sugar ; it does not produce grains, like cane.

The California Dental Society meets the First Tuesday in June and not the 22nd of May.

Miscellaneous.

MANUFACTURE OF CAMPHOR IN JAPAN.

The manufacture of camphor is an important industry on the island of Kiu Shiu (Kew Shew).

From the port of Nagasaka there were exported, in the year 1882, 15,186.18 piculs, valued at $227,792. A picul is 133⅓ pounds. From other ports of the island not yet open to foreign trade, a large quantity was shipped, by native merchants in native vessels, to Shanghai in China, and Hong Kong, whence it finds its way to India and England. Little or none of it is exported to the United States. The camphor-tree grows abundantly all over this portion of Japan. It is found alike on high elevations, and in the valleys and lowlands. It is a hardy, vigorous, long-lived tree, and flourishes in all situations.

Many of these trees attain an enormous size. There are a number in the vicinity of Nagasaka which measure ten and twelve feet in diameter. The ancient temple of Osuwa, at Nagasaka, is situated in a magnificent grove of many hundred grand old camphor-trees, which are of great age and size, and are still beautiful and vigorous. It is said that there are trees in other places in Kiu Shiu measuring as much as twenty feet in diameter. The body or trunk of the tree usually runs up twenty or thirty feet without limbs, then branches out in all directions, forming a well-proportioned, beautiful tree, evergreen, and very ornamental.

The leaf is small, elliptical in shape, slightly serrated, and of a vivid dark-green color all the year round, except for a week or two in the early spring, when the young leaves are of a delicate, tender green. The seed or berry grows in clusters, and resembles black currants in size and appearance. The wood is used for many purposes; its fine grain rendering it especially valuable for cabinet work, while it is suited also for ship building. The roots make excellent knees for ships.

In the manufacture of camphor the tree is necessarily destroyed; but by a stringent law of the land, another is planted in its stead. The simple method of manufacture employed by the natives is as follows:

The tree is felled, and cut into small pieces, or, more properly speaking, into chips.

A large metal pot is partially filled with water, and placed over a slow fire. A wooden tub is fitted to the top of the pot, and the chips

of camphor-wood are placed in this. The bottom of the tub is perforated, so as to permit the steam to pass up among the chips.

A steam-tight cover is fitted on the tub. From this tub a bamboo pipe leads to another tub, through which the enclosed steam, the generated camphor, and oil flow. This second tub is connected in like manner with a third.

The third tub is divided into two compartments, one above the other; the dividing floor being perforated with small holes to allow the water and oil to pass to the lower compartment. The upper compartment is supplied with a layer of straw, which catches and holds the camphor in crystal in deposit as it passes to the cooling process. The camphor is then separated from the straw, packed in wooden tubs of 133½ pounds each, and is ready for the market.

After each boiling, the water runs off through a faucet, leaving the oil, which is used by the natives for illuminating and other purposes.

OXYGEN AND NERVOUS EXHAUSTION.

Our lungs suffer for oxygen ; but not our lungs alone. Besides being the best pulmonary pabulum, oxygen is a nerve tonic ; a forester, a hunter, a Swiss shepherd boy, in a state of tubercular consumption, or one in a state of nervous fretfulness, would be an exceptional phenomena. And it would be a mistake to suppose that only summer air and exercise could produce this nerve-soothing influence. Let a fretful girl take a sleigh-ride on a cold, clear, winter day, or through a snow storm. Let her skate. Give her a chance to get an hour's out-door exercise even on drizzly or frosty days. The north wind may white-freeze her ear tips, but it will restore the color of her cheeks, it will restore her appetite, her energy, and her buoyant spirits. Those whom necessity compels to limit their out-door rambles to the half-mile between home and shop, should let the night make up for the shortcomings of the day, and sleep—in dry weather, at least—with a wide-open window. Only a first experiment of that sort will necessitate the addition of a night-cap to one's bedclothing ; and even nervous ladies will resist the temptation to cover up their faces if they find how soon the wonted morning languor gives way to the influence of Nature's restorative. Those who dislike to risk the discomfort of initiation before ascertaining the value of the remedy, can make another test experiment : After a summer vacation, when fatigue and early rising enable anybody to sleep soundly in an open tent, the first few nights after returning home will be a favorable time for defying the night-air superstition and sleeping, perhaps with slight qualms of the old prejudice, but without the least bodily discomfort, on a balcony or in an open hall, with open windows on all sides. After a week, transfer the couch to the old air-

tight bedroom, and note the result: All the next forenoon a queer feeling of discomfort, as after a prolonged exposure to the fumes of a smoky kitchen, will illustrate the difference. To persons who have thus emancipated themselves from the delusions of the night-air dread, the atmosphere of a close bedroom is oppressive enough to spoil the night's rest and bring on a relapse of many of the distressing concomitants of nervous insomnia. A slight elevation of the window-sash will remedy the evil. Savages alternate their wigwam holiday with periods of prodigious exertion, and an occasional mountain tour would atone for a good many days of city life, but hardly for weeks of sedentary occupation. Without at least one hour per day of active out-door exercise, no native strength of constitution can resist the morbific influences of stagnant humors. By increasing the action of the circulatory system, physical exercise promotes the elimination of such humors, with their whole train of morbid consequences—tantrums, troubled dreams, and the nervous affections proper; restlessness and want of vital energy. There is no need of going to extremes, and exhausting the little remaining strength of the patient, but without a certain amount of *fatigue* the specific fails to operate, and experience will show that labor with a practical purpose—gardening, boat-rowing, or amateur carpentering—enables people to beguile themselves into a far greater amount of hard work than the drill-master of a gymnasium could get them to undergo. Besides the potential energy that turns hardships into play-work, athletes have the further advantage of a greater disease-resisting capacity. Their constitution does not yield to every trifling accident; their nerves can stand the wear and tear of ordinary excitements; a little change in the weather does not disturb their sleep; they can digest more than other people.

For nervous children my first prescription would be—the open woods and a merry play-mate; for the nervousness of their elder comrades—some diverting, but withal fatigueing, form of manual labor. In the minds of too many parents there is a vague notion that rough work brutalizes the character. The truth is, that it regulates its defects; it calms the temper, it affords an outlet to things that would otherwise vent themselves in fretfulness and ugly passions.

Light is a chief source of vital energy, and every deduction from the proper share of that natural stimulus of the organic process is sure to tell upon the well-being of every living organism. In ancient Rome special sun-bathing houses were used as a specific for a form of weakness which was then more frequent than premature debility—the infirmity of extreme old age. In winter time white-haired invalids, stripped to the waist, basked for hours under the glass roof of a *solarium* which excluded the chill winds, but admitted the light from all sides. Persons of limited means can utilize the elevation of their garrets, and use

a half-screened window corner as a *solarium* for hours together. The expectation of disastrous consequences will be as surely disappointed as the dread of the night air.

THE LIFE OF THE MOSQUITO.

If the mosquito were a very rare insect, found only in some far-off country, we should look upon it as one of the most curious of living creatures, and read its history with wonder—that an animal could live two such very different lives, one in the water and the other in the air. We speak of the mosquito as if there were but one, while really there are over thirty different kinds, all, however, having similar habits, so that a description of one answers for all. The female mosquito lays her eggs on the water. She forms a little boat, gluing the eggs together side by side, until she has from 250 to 350 thus fastened together. The boat or raft is oval in shape, highest at the ends, and floats away merrily for a few days. The eggs then hatch, and the young mosquito enters the water, where the early part of its life is to be passed. You can find the young insects in this, their larval, stage, in pools of fresh water, or even in a tub of rain water which has been standing uncovered for a days. They are called wrigglers, on account of the droll way in which they jerk about the water. They feed upon very minute creatures, and also upon decaying vegetable matter. Near the tail the wriggler has a tube through which it breathes. If you approach the pool or tub very quietly, you can see them in great numbers, heads downward, with their breathing tube above the surface. If you make the least disturbance, they will scamper down into deep water. After wriggling about for two weeks, and changing their skins several times, the larva becomes a pupa.

You know that most insects in the pupa state do not move, but take a sleep of greater or less length. Not so the lively little mosquito. In its pupa state it becomes a big-headed creature which does not eat. It moves about quite rapidly, but not with the same wriggling motion; it now has a pair of paddles at its tail end, and takes in air through tubes near the head. In five or ten days the mosquito ends its life in the water, and becomes a winged insect. The pupa comes to the surface, and the skin cracks open on the back, allowing first its head and chest to come forth, finally the legs, wings, and the rest. This is a most trying moment in the life of the insect; if a slight puff of wind should upset it before the wings are dry, it will surely drown; only a small proportion of the whole number succeed in safely leaving the pupa case; the greater share becomes food for the fishes. If the wings once get fairly dry, then the insect can sail away, humming its tiny song of gladness. How does it sing? Perhaps when you heard its note at night you did

not stop to consider. It is a point which has puzzled many naturalists, and it is not certainly known how the note is produced, but probably the rapid motion of the wings and the vibration of the muscles of the chest are both concerned in it. The most interesting part about the insect—the "business part," as some one has called it—is its sting or sucker. This is not a simple, sharp pointed tube, but consists of six parts, which lie together in a sheath, and are used as one. How sharp these must be to go through our skin so easily! After the puncture is made, it then acts as a sucker to draw up the blood. The insect which visits us is the female. We rarely see the male mosquito. Blood is not necessary to the existence of the mosquito, and probably but a small share of them ever taste it. The countries in which mosquitoes live in greatest numbers—actual clouds—are not inhabited, by men or animals. —*Danahoe's Magazine.*

DYSPEPSIA.

The late Dr. Leared, in his recently published essay on *The Causes and Treatment of Indigestion*, lays down as a fundamental principle, that the amount of food which each man is capable of digesting with ease always has a limit, which bears relation to his age, constitution, health, and habits, and that indigestion is a consequence of exceeding this limit. Different kinds of food are also differently adapted to different constitutions. Dyspepsia may be brought on by eating irregularly, by allowing too long an interval between meals, and by eating too often. Frequently the meals are not gauged as to their relative amount, or distributed with a due regard to health. Thus, when we go out after taking a light breakfast, and keep at our work, with a still lighter lunch only during the interval till evening, we are apt, with the solid meal which tempts us to indulgence, to put the stomach to a harder test than it can bear. "When a light breakfast is eaten, a solid meal is requisite in the middle of the day. When the organs are left too long unemployed, they secrete an excess of mucus, which greatly interferes with digestion. One meal has a direct influence on the next; and a poor breakfast leaves the stomach over active for dinner. . . . The point to bear in mind is, that not to eat a sufficiency at one meal makes you too hungry for the next; and that, when you are too hungry, you are apt to overload the stomach, and give the gastric juices more to do than they have the power to perform." Persons who eat one meal too soon after another must likewise expect the stomach finally to give notice that it ss imposed upon. Other provocatives of dyspepsia are imperfect mastication, smoking and snuff-taking, which occasion a waste of saliva—although some foolishly think that smoking assists digestion, if done in moderation—sitting in posi-

tions that cramp the stomach, and the pressure that is inflicted on the stomach by the tools of some trades, as of curriers, shoemakers, and weavers. The general symptoms of dyspepsia are well known. Some that deserve special remark are fancies that the limbs or the hands are distorted, mental depression, extreme nervousness hypochondria and other affections of the mind. The cure is to be sought in avoiding the food and habits by which dyspepsia is promoted and using and practicing those which are found to agree best with the system of the subject. Regularity in the hours of meals cannot be too strongly insisted on. "The stomach should not be disappointed when it expects to be replenished. If disappointed, even a diminished amount of food will be taken without appetite; which causes the secretions to injure the stomach, or else impairs its muscular action."—*Scientific News.*

WHY PEOPLE TAKE MEDICINE.

Dr. Crofts, in the *British Quarterly Review*, explains this as follows: It is to be feared that, to most people, medicine is not an erudite science, or a learned art, but is little more than the commonplace administration of physic. They cannot understand medicine without drugs, and its virtue and power are popularly measured by the violence of its operations. Its very name is, in ordinary parlance, synonymous with physic. Take from it its pills and potions, and for them you take away its whole art and mystery. They do not believe in a scheme of treatment, however deep-laid and skiful, which does not include a certain statutary dosage; so that, as a rule, medical men are practically compelled to give their patients a visible object of faith in some form of physic, which may be at most designed to effect some very subordinate purpose. And it is remarkable how strongly, even among the educated classes, this feeling prevails. Cure by the administration of mixtures and boluses is so fixed and ancient a tradition, that it is only very slowly that the world will give it up. The anxiety of the friends of the patient wants to do more than follow the simple directions of "nursing," which have been so carefully inculcated, and possess, apparently, so little remedial powder. There is nothing of the unknown about them in which a fluttering hope of great advantage can nestle. Thus it is necessary to educate the world into a belief in medicine, apart from drugs, which finds its power of curing in adaptations of the common conditions of life and applications of physiological facts—a medicine which takes into its hands the whole life, and orders and fashions its every detail with scientific definiteness. It is found in every day practice that this popular misunderstanding of the modern spirit of medicine constantly checks the little tentative advances of a more scientific treatment, and it is necessary that it should be generally understood how powerfully the various processes of the economy may be effected by the manipulation of the conditions of common life.

PRACTICAL RECIPES.

Von Bibra, well known for his photo-chemical researches, publishes in the *Gewerbe Zeitung* a safe and rapid plan of cleaning pictures. Remove the frame, and dust the surface with brush or feather, after which pass a sponge moistened in spring water over it. Cover the picture next with a shaving soap lather, which does not easily dry, and in ten minutes wash off again with a brush and as little water as necessary. When dry, rub with a clean rag moistened in nitro-benzine, or artificial oil of bitter almonds, substituting a fresh rag occasionally, and not desisting from the process as long as the rags get dirty. Treatment with fine olive-oil, and afterwards with a quick-drying varnish, will revive the colors, if dull.

To Ebonize Wood.—Coat the wood with a solution prepared from one part of blue vitriol and one hundred parts of water. When the coating is dry, apply with a small soft sponge the following solution:

Hydrochlorate of aniline, ...	2 drachms.
Alcohol, ...	2 "

A short time after this has been applied, the wood will acquire a deep black color. This is caused by the action of the blue vitriol upon the aniline hydro-chlorate, forming aniline black. This black color cannot be destroyed either by acids or alkalies: so the wood can be left without further coating but a little ordinary cabinet maker's varnish to give it a lustre.

For making a paste that will keep paper labels on tin boxes.—Use a dilute solution (1 to 20) of white gelatine or isinglass, or starch paste with which a little Venice turpentine has been incorporated while it was warm.

Glass Enamel for Metals.—5 parts of ordinary flint 12 glass, 20 parts of soda, and 12 parts of boric acid are melted together. The coloring matter should be added to this mixture. In the case of white enamel add tin oxide or cryolite. The fused mass is thoroughly incorporated and poured out on metal or stone, and when cold powdered. The powder is mixed with water glass of 50° B.; the metal which is to be enameled is then covered with the mixture. The object prepared in the above described manner is then heated to the points at which the glass melts in a muffle. This enamel will be found very tenacious if applied to iron and steel.—*Scientific American.*

The best thing we have ever found *to prevent the lid of the vulcanizer from adhering* to the boiler is stove blacking wet in water and applied as in blacking a stove. Perhaps the plumbago dissolved in water is quite as good.

How to Stop a Stye.—Dr. Louis Fitzpatrick writes to the *Lancet* that he has never seen a single instance in which the stye continued to develop after the following treatment had been resorted to: The lids should be held apart by the thumb and index finger of the left hand, or a lid retractor, if such be at hand, while the tincture of iodine is painted over the inflamed papilia with a fine camel's hair pencil. The lids should not be allowed to come in contact until the part touched is dry. A few such applications in the twenty-four hours are sufficient.

A small piece of rosin dipped in the water which is placed in a vessel on a stove, says one who knows, will add a peculiar property to the atmosphere of the room, which will give great relief to persons troubled with a cough. The heat of the water is sufficient to throw off the aroma of the rosin, and gives the same relief that is afforded by a combustion of the rosin. It is preferable to combustion, because the evaporation is more durable. The same resin may be used for weeks.—*Ex.*

Prompt Cure of Ringworm.—R. W. Taylor, M.D., in the *Journal of Cutaneous Diseases*, reports the best results from the use of a paint composed of a tincture of myrrh and four grains to the ounce of bichloride of mercury. Other skin affections are cured by the application of this remedy.

Short, Sharp and Decisive—The Dutch papers mention the discovery of a "certain cure" for gout. A peasant who was confined to his bed by a sharp attack was stung by a bee, and almost immediately he felt better and next day he was quite well. A short time after another patient thought he would try the same remedy, and having induced a bee to sting him on the part affected he also was cured.

Glass beads are made by drawing the glass into small tubes and breaking the tubes into suitable lengths for forming the beads. The material is then placed upon a flat plate like a frying pan, which is heated just hot enough to allow the glass to draw the sharp edges into a round; at the same time the plate or pan is gently vibrated so as to prevent cohesion of the softened beads. A cylinder is also used something like a coffee roaster on a small scale. The cylinder can be made of cast iron quite thin. Faceted beads are made by pressing the glass in small moulds that have sharp edges and a punch, so that the eye is punched and the head faceted at one operation, using small rods of glass heated in a muffle furnace. The manufacture is mostly confined to Birmingham, in England, and Venice.—*Scientific American.*